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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/216,214 12/18/98 HAVEMANN

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EXAMINER

TRAN.T

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

03/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.

09/216,214

Applicant(s)

HAVEMANN, ROBERT H.

Examiner

Thien F Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10, 12, 14, 16, 18, 20, 22, 24, 26 and 27 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) ____ is/are allowed.

- 6) ☒ Claim(s) 8-10, 12, 14, 16, 18, 20, 22, 24, 26 and 27 is/are rejected.

- 7) ☐ Claim(s) ____ is/are objected to.

- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: line 5, "said gate" should be --said patterned gate--; line 6, "said gate" should be -said patterned gate--; line 7, "said gate" should be -said patterned gate--; line 10, "said gate" should be -said patterned gate--.

Appropriate correction is required.

2. Claim 9 is objected to because of the following informalities: line 5, "said gate" should be --said patterned gate--; line 6, "said gate" should be -said patterned gate--; line 7, "said gate" should be -said patterned gate--; line 10, "said gate" should be -said patterned gate--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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The recitation of source/drain regions each disposed adjacent to and aligned with the silicide layer disposed on the sidewalls in claim 10 can be interpreted as setting forth structure not supported by the specification. The specification and Fig. 2D support a structure with source/drain regions (70,80) formed by implantation and diffusion to disperse the dopants. As a result, the source/drain regions are not aligned with the silicide layer 60.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 8 recites the limitations "said gate" in lines 5, 6, 7 and 10. There is insufficient antecedent basis for these limitations in the claim.

8. Claim 8 recites the limitation "the thickness" in line 6. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 9 recites the limitations "said gate" in lines 5, 6, 7 and 10. There is insufficient antecedent basis for these limitations in the claim.

10. Claim 9 recites the limitation "the thickness" in line 6. There is insufficient antecedent basis for this limitation in the claim.

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Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8-10, 12, 14, 16, 18, 20, 22, 24, 26 and 27, insofar as in compliance with 35 USC 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai (US 5,841,174) in view of Watabe et al. (US 4,727,038) or Tada (JP 4-42938).

Arai discloses a transistor gate structure (Figs. 2B, 3A) comprising a gate dielectric 103 over a semiconductor region 101; a patterned gate 104a of polysilicon over said gate dielectric having sidewalls, a top surface and a bottom surface; a lateral growth 110 on the gate dielectric at the corners of the patterned gate, but not under central regions of the patterned gate, a thickness of the gate dielectric continually increasing at the interface of the bottom surface and the sidewalls of the patterned gate in a direction from the bottom surface toward and along the sidewalls (see Fig. 3A); and source/drain regions 107a in said semiconductor region defining a channel under the patterned gate. Arai does not disclose a unitary electrically conductive metallic material of titanium silicide covering the sidewalls and the top surface of the patterned gate. It is old to form a transistor gate structure comprising a unitary electrically conductive metallic material of titanium silicide covering sidewalls and a top surface of a patterned gate as shown for example by Watabe et al. (layer 60 in Figs. 9A-9E) and Tada (layer 5 in Fig. 1G). Therefore, it would have been

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obvious to one having ordinary skill in the art at the time the invention was made to incorporate the conventional feature (unitary electrically conductive metallic material of titanium silicide) onto the sidewalls and the top surface of the patterned gate 104a of Arai in order to derive a portion of hot carriers through the gate electrode, and therefore the MOS transistor device whose transconductance is not degraded by hot carrier injection is obtained. As a result, the source/drain regions 107a formed adjacent to the titanium silicide layer disposed on the sidewalls. Arai further discloses a lightly doped source/drain extension (n-- region) of each of said source/drain regions 107a extending under said polysilicon gate 104a.

The claim limitation "lateral growth" in claims 8 and 9 is taken to be a product by process limitation and is given no patentable weight. A product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Response to Arguments

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13. Applicant's arguments filed 11-28-00 have been fully considered but they are not persuasive.

Applicant argues that the source/drain regions are aligned with the silicide layer and this fact is in the disclosure as originally filed. The examiner respectfully disagrees with the remark because Applicant failed to point out where in the original disclosure that source/drain regions are taught to be formed aligned with the silicide layer. Also, Figure 2D clearly shows source/drain regions 80 are not aligned with the silicide layer. This added limitation claiming source/drain regions aligned with the silicide layer is a new matter. Therefore, the rejection under 35 USC 112, first paragraph are maintained.

Regarding to Applicant's argument to 103 rejections of claims 8-10, 12, 14, 16, 18, 20, 22, 24, 26 and 27, Applicant states what the claims require by repeating, almost verbatim, the claim in the argument and then states the conclusion that prior arts do not teach or suggest these limitations. Rule 37 CFR 1.111(b) requires that Applicant must "distinctly and specifically point out errors" in the examiner's action. Also, arguments or conclusions of attorney cannot take the place of evidence. In re Cole, 51 CCPA 919, 326 F.2d 769, 140 USPQ 230 (1964); In re Schulze, 52 CCPA 1422, 346 F.2d 600, 145 USPQ 716 (1965); Meitzner v. Mindick, 549 F.2d 775, 193 USPQ 17 (CCPA 1977).

Conclusion


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14. **Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien Tran whose telephone number is (703) 308-4108. The examiner can normally be reached on Monday through Friday from 7:30AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Sara Crane
Primary Examiner

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February 28, 2001